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EXPLORING THE SOLAR SYSTEM-A CURRENT OVERVIEW

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Abstract:

This paper gives an overview of recent and on-going planetary missions, which will be launched by 2001.

Text:

The last few years of the Century have seen a significant evolution in planetary exploration. After three decades of flying by or visiting the planets for the first time, we are moving to the era of in depth studies, frequent visits, permanent presence and sample return for detailed analysis in Earth laboratories.

Just in the five years period of 1997 to 2001, we have or will be conducting a dozen planetary missions to visit comets and asteroids and bring back samples; study Mars environment from orbit and on the surface with landers, rovers and penetrators; and studying Saturn and it's moons. At the close of the millennium more than a dozen spacecraft will be operating throughout the Solar system ranging from the sun's neighborhood to the edge of the Solar System.

As the century comes to a close we would have visited all the major bodies of the Solar System except for Pluto. This includes:

- Flyby and general survey of all the planets except for Pluto.
- Detailed study of Venus, Mars and the Jovian system from orbiters. Cassini will study the Saturnian system.

- Surface exploration of Venus and Mars with landers and penetrators, and in-situ study of the Jovian atmosphere. Cassini will deploy a probe in the atmosphere of Titan.
- Early investigation of comets and asteroids culminating with NEAR rendezvous with EROS, and Stardust Sample Return from the coma of comet Wild 2 (pronounced "Velt 2").

These missions represent the end of the era of the large missions that gave us a detailed survey of the Solar System, and the beginning of the era of frequent travel to all the bodies of the Solar System, and acquisition of sample for analysis back on Earth.

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